

Examiner Search Notes

Johnson '204 and '852 author search

Page 1

=> d 150 1-5 all

L50 ANSWER 1 OF 9 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2004:602764 HCAPLUS
DN 141:129581
ED Entered STN: 28 Jul 2004
TI Synthesis of alumino- and silicoalumino-phosphates of CHA framework type
IN Cao, Guang; Shah, Matu J.
PA Exxonmobil Chemical Patents Inc., USA
SO U.S., 19 pp.
CODEN: USXXAM
DT Patent
LA English
IC ICM B01J027-182
ICS C01B039-54
NCL 502214000; 502208000; 423328100; 423328200; 423329100
CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)
Section cross-reference(s): 51
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6767858	B1	20040727	US 2003-370932	20030220

PRAI US 2003-370932 20030220

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 6767858	ICM	B01J027-182
	ICS	C01B039-54
	NCL	502214000; 502208000; 423328100; 423328200; 423329100

AB The invention is directed to a method of synthesizing aluminophosphate and silicoaluminophosphate mol. sieves and in particular to the synthesis of aluminophosphate and silicoaluminophosphate mol. sieves using N-methylethanolamine as template with or without a source of fluoride. The use of N-methylethanolamine as template results in good quality AlPO₄ of CHA framework type and SAPO mol. sieves of CHA framework type with low levels of silicon in high yield.

ST aluminophosphate silicoaluminophosphate zeolite CHA framework type synthesis

IT Aluminophosphate zeolites
(AlPO₄; synthesis of alumino- and silicoalumino-phosphates of CHA

framework type)
IT Silicoaluminophosphate zeolites
(SAPO; synthesis of alumino- and silicoalumino-phosphates of CHA
framework type)
IT Catalysts
(synthesis of alumino- and silicoalumino-phosphates of CHA
framework type)
IT Amines, processes
Quaternary ammonium compounds, processes
(synthesis of alumino- and silicoalumino-phosphates of CHA
framework type)
IT 7784-30-7P, Aluminum phosphate
(synthesis of alumino- and silicoalumino-phosphates of CHA
framework type)
IT 56-34-8, Tetraethylammonium chloride 71-91-0, Tetraethylammonium
bromide 75-31-0, Isopropylamine, processes 77-98-5,
Tetraethylammonium hydroxide 108-91-8, Cyclohexylamine, processes
109-83-1, N-Methylethanolamine 110-68-9, Methylbutylamine
110-91-8, Morpholine, processes 111-42-2, Diethanolamine,
processes 121-44-8, Triethylamine, processes 142-84-7,
Dipropylamine 429-07-2, Tetraethylammonium hexafluorophosphate
665-46-3, Tetraethylammonium fluoride 1185-59-7,
Tetraethylammonium acetate 1333-83-1, Sodium bifluoride (nahf2)
1341-49-7, Ammonium hydrogen difluoride 7664-39-3, Hydrogen
fluoride, processes 7784-18-1, Aluminum trifluoride 7784-19-2,
Triammonium hexafluoroaluminate 16919-19-0, Ammonium
hexafluorosilicate 16919-24-7, Diammonium hexafluorostannate
16919-31-6, Diammonium hexafluorozirconate 16940-81-1, Hydrogen
hexafluorophosphate 16961-83-4, Dihydrogen hexafluorosilicate
16962-40-6, Diammonium hexafluorotitanate 16962-47-3, Diammonium
hexafluorogermanate 16984-48-8, Fluoride, processes 21324-39-0,
Sodium hexafluorophosphate 32287-65-3, Aluminum trifluoride
hydrate 71494-19-4, Tetraethylammonium phosphate
(synthesis of alumino- and silicoalumino-phosphates of CHA
framework type)

RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

- (1) Anon; EP 0993867 2000 HCAPLUS
- (2) Guth; US 5096684 A 1992 HCAPLUS
- (3) Kuehl; US 4786487 A 1988 HCAPLUS
- (4) Lillerud; US 6001328 A 1999 HCAPLUS
- (5) Liu; US 6162415 A 2000 HCAPLUS
- (6) Lok; US 4440871 A 1984 HCAPLUS
- (7) Pellet; US 4861739 A 1989 HCAPLUS
- (8) Wilson; US 4310440 A 1982 HCAPLUS

L50 ANSWER 2 OF 9 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:991131 HCAPLUS

DN 140:29334
 ED Entered STN: 21 Dec 2003
 TI Dimethylamino group-containing amines and alkanolamines as templates
 for synthesis of chabazite-type SAPO zeolite catalysts, especially
 for methanol conversion to lower alkenes
 IN **Cao, Guang; Shah, Matu J.**
 PA Exxonmobil Chemical Patents, Inc., USA
 SO U.S. Pat. Appl. Publ., 17 pp.
 CODEN: USXXCO
 DT Patent
 LA English
 IC ICM B01J027-182
 NCL 502214000
 CC 51-11 (Fossil Fuels, Derivatives, and Related Products)
 Section cross-reference(s): 49
 FAN.CNT 4

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	US 2003232718	A1	20031218	US 2002-170293	200206 12
	US 6680278	B2	20040120		
	US 2003232006	A1	20031218	US 2003-422923	200304 24
	WO 2003106343	A1	20031224	WO 2003-US12713	200304 24
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	WO 2003106341	A1	20031224	WO 2003-US18358	200306 11
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ,				

TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW,
 AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,
 BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT,
 LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM,
 GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRAI US 2002-170293 A2 20020612
 US 2002-171186 A 20020612
 US 2002-171257 A 20020612
 US 2003-422923 A 20030424

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 2003232718	ICM NCL	B01J027-182 502214000

OS MARPAT 140:29334

AB Chabazite-type silicoaluminophosphate (SAPO)-type zeolites are synthesized by reaction of alumina, silica, and phosphorus source materials in the presence of an amine and alkanolamine template contg. a dimethylamino group and (optionally) a tetraethylammonium quaternary ammonium compd. The product SAPO zeolites have characteristic x-ray powder diffraction patterns peaks (2 θ :d-spacing (in Å):relative intensity) of: (1) 20.62:4.30:100; (2) 9.461:9.34:65; (3) 16.018:5.53:50; (4) 24.74:3.59:47; (5) 30.66:2.91:45; (6) 30.939:2.89:23; (7) 17.619:5.03:22; and (8) 25.96:3.43:20. Preferred templates are RN(CH₃)₂ (R = aliph. and cycloaliph.), esp. N,N-dimethyl-C2-7-alkanolamines, N,N-dimethyl-C2-7-alkylenediamines, and N,N-dimethyl-C2-7-alkylamines. The SAPO zeolites have special activity in the conversion of oxygenates, esp. MeOH, to light olefins (esp. ethylene and propylene).

ST SAPO zeolite dimethylamino amine alkanolamine template;
 silicoaluminophosphate zeolite methanol conversion alkene; chabazite
 SAPO zeolite methanol conversion alkene

IT Alkenes, preparation
 (C2-4, methanol conversion to; dimethylamino group-contg. amines
 and alkanolamines as templates for synthesis of chabazite-type
 SAPO zeolite catalysts, esp. for methanol conversion to lower
 alkenes)

IT Amines, uses
 (alicyclic, templates; dimethylamino group-contg. amines and
 alkanolamines as templates for synthesis of chabazite-type SAPO
 zeolite catalysts, esp. for methanol conversion to lower alkenes)

IT Alicyclic compounds
 (amines, templates; dimethylamino group-contg. amines and
 alkanolamines as templates for synthesis of chabazite-type SAPO
 zeolite catalysts, esp. for methanol conversion to lower alkenes)

IT Alcohols, uses

- (amino, templates; dimethylamino group-contg. amines and alkanolamines as templates for synthesis of chabazite-type SAPO zeolite catalysts, esp. for methanol conversion to lower alkenes)
- IT Silicoaluminophosphate zeolites
(chabazite-type; dimethylamino group-contg. amines and alkanolamines as templates for synthesis of chabazite-type SAPO zeolite catalysts, esp. for methanol conversion to lower alkenes)
- IT Petroleum refining catalysts
(conversion; dimethylamino group-contg. amines and alkanolamines as templates for synthesis of chabazite-type SAPO zeolite catalysts, esp. for methanol conversion to lower alkenes)
- IT Amines, uses
(dimethylalkylenediamines, templates; dimethylamino group-contg. amines and alkanolamines as templates for synthesis of chabazite-type SAPO zeolite catalysts, esp. for methanol conversion to lower alkenes)
- IT Functional groups
(dimethylamino, templates; dimethylamino group-contg. amines and alkanolamines as templates for synthesis of chabazite-type SAPO zeolite catalysts, esp. for methanol conversion to lower alkenes)
- IT Chabazite-type zeolites
(silicoaluminophosphates; dimethylamino group-contg. amines and alkanolamines as templates for synthesis of chabazite-type SAPO zeolite catalysts, esp. for methanol conversion to lower alkenes)
- IT Amines, uses
(templates; dimethylamino group-contg. amines and alkanolamines as templates for synthesis of chabazite-type SAPO zeolite catalysts, esp. for methanol conversion to lower alkenes)
- IT Quaternary ammonium compounds, uses
(tetraethylammonium salts; dimethylamino group-contg. amines and alkanolamines as templates for synthesis of chabazite-type SAPO zeolite catalysts, esp. for methanol conversion to lower alkenes)
- IT 67-56-1, Methanol, processes
(conversion of; dimethylamino group-contg. amines and alkanolamines as templates for synthesis of chabazite-type SAPO zeolite catalysts, esp. for methanol conversion to lower alkenes)
- IT 56-34-8, Tetraethylammonium chloride 66-40-0D, Tetraethylammonium, salts 71-91-0, Tetraethylammonium bromide 77-98-5, Tetraethylammonium hydroxide 108-00-9, N,N-Dimethylethylenediamine 108-01-0, N,N-Dimethylethanolamine 108-16-7, 1-Dimethylamino-2-propanol 109-55-7, N,N-Dimethylpropylenediamine 598-56-1, N,N-Dimethylethylamine 665-46-3, Tetraethylammonium fluoride 926-63-6, N,N-Dimethylpropylamine 1938-58-5 3179-63-3, N,N-Dimethylpropanolamine 3529-10-0 4385-04-0, N,N-Dimethylhexylamine 5277-11-2, N,N-Dimethylheptylamine 22078-09-7 26153-88-8, N,N-Dimethylpentylamine 154976-19-9, Butanol, (dimethylamino)- 154976-21-3, Hexanol, (dimethylamino)- 597578-32-0, Heptanol, (dimethylamino)-

(templates; dimethylamino group-contg. amines and alkanolamines as templates for synthesis of chabazite-type SAPO zeolite catalysts, esp. for methanol conversion to lower alkenes)

L50 ANSWER 3 OF 9 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2003:991024 HCAPLUS
 DN 140:18202
 ED Entered STN: 21 Dec 2003
 TI Synthesis of CHA framework type-zeolites as petroleum refining catalysts
 IN Cao, Guang; Shah, Matu J.; Strohmaier, Karl G.; Hall, Richard B.
 PA USA
 SO U.S. Pat. Appl. Publ., 16 pp.
 CODEN: USXXCO
 DT Patent
 LA English
 IC ICM C01B037-04
 ICS C01B037-08; B01J029-03
 NCL 423305000; 423306000; 502208000; 502214000
 CC 51-11 (Fossil Fuels, Derivatives, and Related Products)
 Section cross-reference(s): 49, 67

FAN.CNT 4

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003231999	A1	20031218	US 2002-171257	20020612
WO 2003106340	A1	20031224	WO 2003-US12718	20030424
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG WO 2003106341 A1 20031224 WO 2003-US18358 20030611 W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD,				

GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ,
 LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,
 NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ,
 TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW,
 AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,
 BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT,
 LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM,
 GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRAI US 2002-170293 A 20020612
 US 2002-171186 A 20020612
 US 2002-171257 A 20020612
 US 2003-422923 A 20030424

CLASS

PATENT NO. CLASS PATENT FAMILY CLASSIFICATION CODES

US 2003231999 ICM C01B037-04
 ICS C01B037-08; B01J029-03
 NCL 423305000; 423306000; 502208000; 502214000

AB Microporous aluminophosphate or silicoaluminophosphate mol. sieves having the CHA framework type are prepd. by (a) reacting a source of aluminum, a source of phosphorus, optionally a source of silicon, at least one source of fluoride ions and at least one template contg. one or more N,N-dimethylamino moieties, (b) inducing crystn. of aluminophosphate and/or silicoaluminophosphate mol. sieve from the reaction mixt.; and (c) recovering and calcining of the mol. sieves. The template can be N,N-dimethylbutanolamine, N,N-dimethylheptanolamine, N,N-dimethylhexanolamine, N,N-dimethylethylenediamine, N,N-dimethylpropylenediamine, N,N-dimethylbutylenediamine, N,N-dimethylheptylenediamine, N,N-dimethylhexylenediamine, dimethylethylamine, dimethylpropylamine, dimethylheptylamine, dimethylhexylamine, or preferably N,N-dimethylethanolamine. The source of fluoride can be a metal fluoride, ammonium fluoride, tetralkylammonium fluorides, or preferably hydrogen fluoride. The fluoride is within the intra-cryst. structure of the mol. sieve. The prepd. zeolites can be used as catalysts, e.g. for the conversion of methanol to olefins.

ST silicoaluminophosphate aluminophosphate zeolite prepn template
 fluoride petroleum refining catalyst

IT Petroleum refining catalysts
 (synthesis of CHA framework type-zeolites as petroleum refining catalysts)

IT Aluminophosphate zeolites
 Silicoaluminophosphate zeolites
 (synthesis of CHA framework type-zeolites as petroleum refining catalysts)

IT 24623-77-6, Catapal

(Catapal; synthesis of CHA framework type-zeolites as petroleum refining catalysts)

IT 7631-86-9, Cabosil, reactions
(colloidal, Cabosil; synthesis of CHA framework type-zeolites as petroleum refining catalysts)

IT 7664-38-2, Phosphoric acid, reactions
(synthesis of CHA framework type-zeolites as petroleum refining catalysts)

IT 108-00-9, N,N-Dimethylethylenediamine 108-01-0,
N,N-Dimethylethanolamine 109-55-7, N,N-Dimethylpropylenediamine
598-56-1 926-63-6, Dimethylpropylamine 1862-07-3, 1-Hexanol,
6-(dimethylamino)- 1938-58-5, 1,6-Hexanediamine, N,N-dimethyl
3529-10-0, 1,4-Butanediamine, N,N-dimethyl 4385-04-0 5277-11-2,
Dimethylheptylamine 7664-39-3, Hydrofluoric acid, uses
13330-96-6, 1-Butanol, 4-(dimethylamino)- 22078-09-7,
1,7-Heptanediamine, N,N-dimethyl 27384-67-4, 1-Heptanol,
7-(dimethylamino)-
(template; synthesis of CHA framework type-zeolites as petroleum refining catalysts)

L50 ANSWER 4 OF 9 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:989895 HCAPLUS
DN 140:18201
ED Entered STN: 19 Dec 2003
TI Synthesis of CHA framework type-zeolites as petroleum refining catalysts
IN Cao, Guang; Shah, Matu J.
PA USA
SO U.S. Pat. Appl. Publ., 17 pp., Cont.-in-part of U.S. Ser. No. 170,293.
CODEN: USXXCO
DT Patent
LA English
IC ICM C01F007-00
NCL 423705000
CC 51-11 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 49

FAN.CNT 4

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	
PI	US 2003232006	A1	20031218	US 2003-422923	20030424
	US 2003232718	A1	20031218	US 2002-170293	20020612
	US 6680278	B2	20040120		

WO 2003106341

A1

20031224

WO 2003-US18358

200306

11

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRAI US 2002-170293 A2 20020612
 US 2002-171186 A 20020612
 US 2002-171257 A 20020612
 US 2003-422923 A 20030424

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 2003232006	ICM	C01F007-00
	NCL	423705000

US 2003232006	ICM	C01F007-00
	NCL	423705000

AB Cryst. silicoaluminophosphate mol. sieves having the CHA framework type are prep'd. by reacting a source of aluminum, a source of phosphorus, a source of silicon and at least one org. template contg. one or more N,N-dimethylamino moieties, inducing crystn. of the mol. sieve from the reaction mixt., and calcining. The template can be N,N-dimethylethanolamine, N,N-dimethylpropanolamine, N,N-dimethylbutanolamine, N,N-dimethylheptanolamine, N,N-dimethylhexanolamine, N,N-dimethylethylenediamine, N,N-dimethylbutylenediamine, N,N-dimethylheptylenediamine, N,N-dimethylhexylenediamine, 1-dimethylamino-2-propanol, N,N-dimethylethylamine, N,N-dimethylpropylamine, N,N-dimethylpentylamine, N,N-dimethylheptylamine, and N,N-dimethylhexylamine. The org. template can be tetraethylammonium chloride, tetraethylammonium bromide, or tetraethylammonium fluoride. The prep'd. zeolites can be used as catalysts, e.g. for the conversion of methanol to olefins.

ST silicoaluminophosphate zeolite prepn org template petroleum refining catalyst

IT Petroleum refining catalysts
 (synthesis of CHA framework type-zeolites as petroleum refining catalysts)

IT Aluminophosphate zeolites
 Silicoaluminophosphate zeolites
 (synthesis of CHA framework type-zeolites as petroleum refining catalysts)

IT 24623-77-6, Catapal
(Catapal; synthesis of CHA framework type-zeolites as petroleum refining catalysts)

IT 7631-86-9, Cabosil, reactions
(colloidal, Cabosil; synthesis of CHA framework type-zeolites as petroleum refining catalysts)

IT 7664-38-2, Phosphoric acid, reactions
(synthesis of CHA framework type-zeolites as petroleum refining catalysts)

IT 56-34-8, Tetraethylammonium chloride 71-91-0, Tetraethylammonium bromide 77-98-5, Tetraethylammonium hydroxide 108-00-9, N,N-Dimethylethylenediamine 108-01-0, N,N-Dimethylethanolamine 108-16-7, 1-Dimethylamino-2-propanol 598-56-1 665-46-3, Tetraethylammonium fluoride 926-63-6, Dimethylpropylamine 1862-07-3, 1-Hexanol, 6-(dimethylamino)- 1938-58-5, 1,6-Hexanediamine, N,N-dimethyl 3179-63-3, 1-Propanol, 3-(dimethylamino)- 3529-10-0, 1,4-Butanediamine, N,N-dimethyl 4385-04-0 5277-11-2, Dimethylheptylamine 13330-96-6, 1-Butanol, 4-(dimethylamino)- 22078-09-7, 1,7-Heptanediamine, N,N-dimethyl 26153-88-8, N,N-Dimethylpentylamine 27384-67-4, 1-Heptanol, 7-(dimethylamino)-
(template; synthesis of CHA framework type-zeolites as petroleum refining catalysts)

L50 ANSWER 5 OF 9 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2003:730548 HCAPLUS

DN 139:247842

ED Entered STN: 17 Sep 2003

TI Synthesis of aluminophosphate and silicoaluminophosphate zeolites as methanol conversion catalysts for manufacture of lower alkenes and alkylamines

IN **Cao, Guang; Shah, Matu J.; Strohmaier, Karl G.;**
Hall, Richard B.

PA Exxonmobil Chemical Patents Inc., USA

SO U.S., 18 pp.
CODEN: USXXAM

DT Patent

LA English

IC ICM B01J029-83
ICS B01J029-85

NCL 585640000; 585639000; 502208000; 502214000; 423305000; 423306000; 423327100; 423-DIG.30

CC 51-11 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 35, 45, 49

FAN.CNT 4

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI US 6620983 B1 20030916 US 2002-171186

200206
12

WO 2003106342 A1 20031224 WO 2003-US9592

200303
28

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH,
CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD,
GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ,
LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,
NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL,
TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,
BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT,
LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

WO 2003106341 A1 20031224 WO 2003-US18358

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W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH,
CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD,
GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ,
LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,
NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ,
TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW,
AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,
BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT,
LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRAI US 2002-170293 A 20020612
US 2002-171186 A 20020612
US 2002-171257 A 20020612
US 2003-422923 A 20030424

CLASS

PATENT NO. CLASS PATENT FAMILY CLASSIFICATION CODES

US 6620983 ICM B01J029-83
ICS B01J029-85
NCL 585640000; 585639000; 502208000; 502214000;
423305000; 423306000; 423327100; 423-DIG.30

OS MARPAT 139:247842

AB Aluminophosphate zeolites and silicoaluminophosphate zeolites with
CHA-type framework are prep'd. from an alumina source, a comp'd.
contg. two or more fluorine substituents that is capable of
providing fluoride ions, an org. template, and, optionally, a source
of silica, followed by induced crystn. The template has a general

structure R₁R₂N-R₃, in which R₁ and R₂ are C₁-5-alkyl; and R₃ = C₁-12-alkyl, C₁-8-cycloalkyl, C₁-12-hydroxyalkyl, and C₁-12-aminoalkyl. Specific templates include tetraethylammonium salts (selected as OH-, PO₄3-, F-, Br-, Cl-, and OAc-) as well as dipropylamine, isopropylamine, cyclohexylamine, morpholine, methylbutylamine, diethanolamine, or triethylamine. Fluorinated compds. include Et₄N.PF₆, NaHF₂, NH₄PF₆, H₂SiF₆, (NH₄)₂SiF₆, NH₄HF₂, NaPF₆, AlF₃, (NH₄)₃AlF₆, (NH₄)₂TiF₆, (NH₄)₂ZrF₆, (NH₄)₂GeF₆, and (NH₄)₂SnF₆. The zeolites have catalytic activity for conversion of an oxygenated feedstock, esp. MeOH, to lower olefins (esp. ethylene and propylene) or to alkylamines when reacted in the presence of ammonia.

- ST aluminophosphate silicoaluminophosphate zeolite methanol conversion alkene; alkylamine methanol ammonia conversion aluminophosphate SAPO zeolite
- IT Hydrocarbons, preparation
(C>4, methanol conversion to; synthesis of aluminophosphate and silicoaluminophosphate zeolites as methanol conversion catalysts for manuf. of lower alkenes and alkylamines)
- IT Alkenes, preparation
(C₂-4, manuf. of, from methanol; synthesis of aluminophosphate and silicoaluminophosphate zeolites as methanol conversion catalysts for manuf. of lower alkenes and alkylamines)
- IT Petroleum refining catalysts
(conversion, for methanol; synthesis of aluminophosphate and silicoaluminophosphate zeolites as methanol conversion catalysts for manuf. of lower alkenes and alkylamines)
- IT Functional groups
(dimethylamino-, in templates; in synthesis of aluminophosphate and silicoaluminophosphate zeolites as methanol conversion catalysts for manuf. of lower alkenes and alkylamines)
- IT Amines, preparation
(manuf. of, from methanol; synthesis of aluminophosphate and silicoaluminophosphate zeolites as methanol conversion catalysts for manuf. of lower alkenes and alkylamines)
- IT Aluminophosphate zeolites
Silicoaluminophosphate zeolites
(synthesis of aluminophosphate and silicoaluminophosphate zeolites as methanol conversion catalysts for manuf. of lower alkenes and alkylamines)
- IT Quaternary ammonium compounds, uses
(templates; in synthesis of aluminophosphate and silicoaluminophosphate zeolites as methanol conversion catalysts for manuf. of lower alkenes and alkylamines)
- IT Amines, uses
(tertiary, templates; in synthesis of aluminophosphate and silicoaluminophosphate zeolites as methanol conversion catalysts for manuf. of lower alkenes and alkylamines)

- IT 67-56-1, Methanol, processes
(conversion of; synthesis of aluminophosphate and
silicoaluminophosphate zeolites as methanol conversion catalysts
for manuf. of lower alkenes and alkylamines)
- IT 429-07-2, Tetraethylammonium hexafluorophosphate 1333-83-1, Sodium
fluoride (NaHF₂) 1341-49-7, Ammonium fluoride ((NH₄)HF₂)
7784-18-1, Aluminum trifluoride 7784-19-2, Ammonium
hexafluoroaluminate 16919-19-0, Ammonium hexafluorosilicate
16919-24-7, Ammonium hexafluorostannate 16919-31-6, Ammonium
hexafluorozirconate 16940-81-1, Hydrogen hexafluorophosphate
16941-11-0, Ammonium hexafluorophosphate 16961-83-4 16962-40-6,
Ammonium hexafluorotitanate 16962-47-3 21324-39-0, Sodium
hexafluorophosphate 32287-65-3, Aluminum trifluoride, hydrate
(fluoride source; synthesis of aluminophosphate and
silicoaluminophosphate zeolites as methanol conversion catalysts
for manuf. of lower alkenes and alkylamines)
- IT 74-84-0P, Ethane, preparation 74-98-6P, Propane, preparation
106-98-9P, 1-Butene, preparation 107-01-7P, 2-Butene
(methanol conversion to; synthesis of aluminophosphate and
silicoaluminophosphate zeolites as methanol conversion catalysts
for manuf. of lower alkenes and alkylamines)
- IT 115-07-1P, Propylene, preparation
(methanol conversion to; synthesis of aluminophosphate and
silicoaluminophosphate zeolites as methanol conversion catalysts
for manuf. of lower alkenes and alkylamines)
- IT 74-85-1P, Ethylene, preparation
(synthesis of aluminophosphate and silicoaluminophosphate
zeolites as methanol conversion catalysts for manuf. of lower
alkenes and alkylamines)
- IT 56-34-8, Tetraethylammonium chloride 71-91-0, Tetraethylammonium
bromide 75-31-0, Isopropylamine, uses 77-98-5,
Tetraethylammonium hydroxide 108-00-9, N,N-Dimethylethylenediamine
108-01-0, N,N-Dimethylethanolamine 108-91-8, Cyclohexylamine, uses
109-55-7, N,N-Dimethylpropylenediamine 110-68-9, Methylbutylamine
110-91-8, Morpholine, uses 111-42-2, Diethanolamine, uses
121-44-8, Triethylamine, uses 142-84-7, Dipropylamine 598-56-1
665-46-3, Tetraethylammonium fluoride 926-63-6,
Dimethylpropylamine 1185-59-7, Tetraethylammonium acetate
1938-58-5 3529-10-0 4385-04-0 5277-11-2, Dimethylheptylamine
22078-09-7 76206-78-5, Ethanaminium, N,N,N-triethyl-, phosphate
(3:1) 154976-19-9, Butanol, (dimethylamino)- 154976-21-3,
Hexanol, (dimethylamino)- 597578-32-0
(templates; synthesis of aluminophosphate and
silicoaluminophosphate zeolites as methanol conversion catalysts
for manuf. of lower alkenes and alkylamines)

RE.CNT 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD

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